

A translation of the Adachi reference is attached. In the Adachi reference, Figures 1, 2 and 3 each show a system in which a cooling medium (which may be liquid nitrogen) is supplied from a cooler 3 to a superconducting generator 2 in order to cool a superconducting generator (a coil) to a superconducting state. A driver 1 (such as a motor, water wheel, or steam turbine) rotates the superconducting generator 2 in order to generate power.

In the embodiment shown in Figure 1 of Adachi, cooler 3 supplies a cooling medium not only to superconducting generator 2 (through valves 9 and 10), but also to condenser 4 (through valves 7 and 8). For the drive source of turbine 1, a secondary medium closed cycle is constructed of condenser 4, pump 5 for supplying a secondary medium, and evaporator 6. Condenser 4 condenses the secondary medium. Pump 5 feeds the condensed secondary medium to evaporator 6. Evaporator 6 evaporates the secondary medium, and feeds the evaporated secondary medium back to drive turbine 1. This flow of the evaporated secondary medium causes rotational movement of drive turbine 1, which is mechanically connected to superconducting generator 2, thereby causing rotational movement of superconducting generator 2. When superconducting generator 2 is cooled to its superconducting temperature, power is generated. In this embodiment, cooling medium from cooler 2 is utilized to cool superconducting generator 2 and is also supplied to condenser 4 to assist in condensing the secondary medium after the secondary medium has passed through the drive turbine. There are no teachings, disclosures or suggestions, however, of using the cooling medium for providing power to the driver (referred to in the discussion of Figure 1 of Adachi as a turbine, and referred to in the present application as a "prime mover").

The difference between the embodiment of Figure 2 of Adachi and Figure 1 of Adachi is that Figure 2 provides for alternate flow paths for the cooling medium from cooler 3. When starting, valves 7 and 8 are opened with valves 9, 10 and 11 closed, so that the cooling medium is initially supplied only to the condenser 4. Once the turbine 1 is

rotating, valves 9 and 11 are opened and valve 7 is closed, so that the cooling medium now flows to the superconducting generator 2 and from the superconducting generator 2 through valve 11 to condenser 4, and through valve 8 back to the cooler 3. After the generator reaches a superconductive state valves 7 and 10 are opened and valve 11 is closed, so the coolant flow is now the same as described with respect to Figure 1. Again, there are no teachings, disclosures or suggestions of using the cooling medium for providing power to the driver (referred to in the discussion of Figure 1 of Adachi as a turbine, and referred to in the present application as a "prime mover").

Claims 21 and 22 have been amended to more clearly define the invention. Claim 21 now includes the element:

utilizing a flow of gas from a container of cryogenic fluid resulting from evaporation of said cryogenic fluid to generate rotational movement of a prime mover

Neither the Adachi reference nor the Dowsett et al reference, either alone or in combination, teach, disclose or suggest "utilizing a flow of gas from a container of cryogenic fluid resulting from evaporation of said cryogenic fluid to generate rotational movement of a prime mover".

Claim 22 now includes the element:

a conduit which conducts a flow of gas from a container of cryogenic fluid, said flow of gas resulting from evaporation of cryogenic fluid in said container, to said prime mover to induce rotational motion in said prime mover

Neither the Adachi reference nor the Dowsett et al reference, either alone or in combination, teach, disclose or suggest "a conduit which conducts a flow of gas from a

a container surrounding said coil adapted for holding a cryogenic fluid to maintain said coil at a temperature below said critical temperature;

a prime mover mounted in said power generator so as to be rotatable in response to a gaseous stream;

a conduit for applying a gaseous stream to said prime mover from a source of pressurized gas resulting from evaporation of a cryogenic fluid, said source of pressurized gas being said container surrounding said coil and said gaseous stream comprising gas resulting from evaporation of said cryogenic fluid; and

an electrical conductor rotatably mounted in said power generator and operatively connected to said prime mover so that rotational movement of said prime mover is transferred to said electrical conductor, said electrical conductor being mounted in a position with respect to said coil so that an electrical current flow in said coil will produce a magnetic field in the space in which said electrical conductor is rotatable, thereby generating a voltage gradient within said electrical conductor in response to rotational movement of said electrical conductor through said magnetic field.

19. (Twice amended) A method for constructing an electrical power generator, comprising:

forming a coil from a material which is electrically superconductive at temperatures below a critical temperature;

enclosing said coil in a container adapted for holding a cryogenic fluid to maintain said coil at a temperature below said critical temperature;

mounting a prime mover in said power generator so as to be rotatable in response to a gaseous stream;

connecting a conduit for applying a gaseous stream to said prime mover from a source of pressurized gas resulting from evaporation of a cryogenic fluid, said source of pressurized gas being said container surrounding said coil and said gaseous stream comprising gas resulting from evaporation of said cryogenic fluid; and

rotatably mounting an electrical conductor in said power generator in a position with respect to said coil so that an electrical current flow in said coil will produce a magnetic

field in the space in which said electrical conductor is rotatable and operatively connecting said electrical conductor to said prime mover so that rotational movement of said prime mover is transferred to said electrical conductor, thereby generating a voltage gradient within said electrical conductor in response to rotational movement of said electrical conductor through said magnetic field.

21. (Amended) A method for generating electrical power, comprising  
generating a magnetic field by circulating an electrical current in an electrically superconductive coil immersed in a cryogenic fluid;  
utilizing a flow of gas from a container of cryogenic fluid resulting from evaporation of said cryogenic fluid to generate rotational movement of a prime mover; and  
operatively connecting said prime mover to an electrical conductor to rotate said electrical conductor in said magnetic field, thereby generating electrical power.

22. (Amended) An apparatus for generating electrical power, comprising:  
an electrically superconductive coil immersed in a cryogenic fluid, said superconductive coil generating a magnetic field within a region surrounding said superconductive coil when an electrical current circulates in said superconductive coil;  
a prime mover;  
a conduit which conducts a flow of gas from a container of cryogenic fluid, said flow of gas resulting from evaporation of cryogenic fluid in said container, to said prime mover to induce rotational motion in said prime mover; and  
an electrical conductor rotatably mounted within said region, and operatively connected to said prime mover so that rotational movement of said prime mover is transferred to said electrical conductor.

31. (Amended) An electrical power generator, comprising:  
a coil formed from material which is electrically superconductive at temperatures below a critical temperature;

a container surrounding said coil adapted for holding a cryogenic fluid to maintain said coil at a temperature below said critical temperature;

a prime mover mounted in said power generator so as to be rotatable in response to a gaseous stream;

a conduit for applying a gaseous stream to said prime mover from a source of pressurized gas resulting from evaporation of a cryogenic fluid wherein said source of pressurized gas is a container for cryogenic fluid other than the container surrounding said coil; and

an electrical conductor rotatably mounted in said power generator and operatively connected to said prime mover so that rotational movement of said prime mover is transferred to said electrical conductor, said electrical conductor being mounted in a position with respect to said coil so that an electrical current flow in said coil will produce a magnetic field in the space in which said electrical conductor is rotatable, thereby generating a voltage gradient within said electrical conductor in response to rotational movement of said electrical conductor through said magnetic field.

32. (Amended) A method for constructing an electrical power generator, comprising:

forming a coil from a material which is electrically superconductive at temperatures below a critical temperature;

enclosing said coil in a container adapted for holding a cryogenic fluid to maintain said coil at a temperature below said critical temperature;

mounting a prime mover in said power generator so as to be rotatable in response to a gaseous stream;

connecting a conduit for applying a gaseous stream to said prime mover from a source of pressurized gas resulting from evaporation of a cryogenic fluid wherein said source of pressurized gas is a container for cryogenic fluid other than the container in which said coil is enclosed; and

rotatably mounting an electrical conductor in said power generator in a position with respect to said coil so that an electrical current flow in said coil will produce a magnetic